

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have cancelled claim 14, without prejudice, in order to overcome the § 112 rejections. Applicants would point out that the cancelling of claim 14 is not an admission that the § 112 rejection of claim 14 is valid. No new matter has been added.

Applicants respectfully submit that all pending claims are patentable over the cited prior art for the reasons set forth below.

II. The Rejection Of Claims 8-13 Under 35 U.S.C. § 102

Claims 8-13 were rejected under 35 U.S.C. § 102(b) as being anticipated by Guidash (USP No. 6,657,665). Applicants respectfully submit that Guidash fails to anticipate the pending claims for at least the following reasons.

With regard to the present invention, claim 8 recites a solid-state imaging apparatus comprising: a substrate; a first pixel formed on the substrate including a first photodiode, a first transfer transistor and a first floating diffusion and a second pixel formed on the substrate adjacent to the first pixel including a second photodiode, a second transfer transistor and a second floating diffusion; a distance between the first photodiode and the first floating diffusion is substantially equal to a distance between the second photodiode and the second floating diffusion, and a vertical direction position and a horizontal direction position of the first floating diffusion when viewed from the first photodiode are substantially the same as a vertical direction position and a horizontal direction position of the second floating diffusion when viewed from the second photodiode.

As stated in the previous response, one feature of the present invention is that a distance between the first photodiode and the first floating diffusion is substantially the same as a distance between the second photodiode and the second floating diffusion, and a vertical direction position and a horizontal direction position of the first floating diffusion when viewed from the first photodiode are substantially the same as a vertical direction position and a horizontal direction position of the second floating diffusion when viewed from the second photodiode. The Attachment included with this Response is a depiction of Fig. 1 of the present disclosure with arrows and explanations to show that the first and second floating diodes 206 (FD) are located the same positionally to the first and second photodiodes 201 (PD).

As a result of this feature, there is no difference between ways of an incident light into the first photodiode and the second photodiode, so the sensitivity of the first pixel and the second pixel can be more accurate.

The Attachment also contains a depiction of Fig. 4 of Guidash, again modified with arrows and text to disclose the Active Pixel Sensor (APS) comprising: a pixel **10** including a photodiode photodetector **12 PDb** (PD), a transfer gate **23** and a floating diffusion **25** (FD); another pixel **10** adjacent to the pixel **10** including another photodiode **12 PDa** (PD), another transfer transistor **23** and another floating diffusion **25** (FD); a reset transistor **14**; and a source follower input signal transistor **21** wherein a gate electrode of the source follower input signal transistor **21** is connected to the floating diffusions **25s**, a source of the reset transistor **14** is connected to the floating diffusions **25s**. Guidash states that the two row adjacent pixels are shown indicating how the physically separate floating diffusions in each pixel are interconnected to each other and shared by the two row adjacent pixel.

In addition, Fig. 5 of Guidash discloses an Active Pixel Sensor including four pixels (row A column 1, row A column 2, row B column 1, row B column 2) having photodiodes PD1a, PD1b, PD2a and PD2b, respectively and floating diffusions FDa and FDb.

As is clearly shown in the side by side figures in Attachment 1, in contrast to the present disclosure, Guidash does not disclose that a distance between the first photodiode **12 PDb** (FD) and the first floating diffusion **25** (FD) is substantially the same as a distance between the second photodiode **12 PDa** (FD) and the second floating diffusion **25** (FD), and a vertical direction position and a horizontal direction position of the first floating diffusion **25** when viewed from the first photodiode **12** are substantially the same as a vertical direction position and a horizontal direction position of the second floating diffusion **25** when viewed from the second photodiode **12**. Rather, the first floating diffusion is located to the upper right of the first photodiode whereas the second floating diffusion is located to the lower right as the second photodiode. As such, the effect that the sensitivity of the first pixel and the second pixel can be more accurate can not be achieved.

Furthermore, the Office Action states on page 4, lines 10-11 that the first floating diffusion is viewed upward from the first photodiode while the second floating diffusion is viewed downward from the second photodiode. As such, the Office Action admits that the first and second floating diffusions are not viewed in the same horizontal and vertical directions as the first and second photodiodes, respectfully.

Moreover, Shinohara, which is used in the § 103 rejection of cancelled claim 14, is not relied upon and also appears to be silent with respect to the above-mentioned limitation of claim 8.

Anticipation under 35 U.S.C. § 102 requires that each element of the claim in issue be found, either expressly described or under principles of inherency, in a single prior art reference, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 218 USPQ 781 (Fed. Cir. 1983). As, at a minimum, Guidash does not disclose that a distance between the first photodiode and the first floating diffusion is substantially the same as a distance between the second photodiode and the second floating diffusion, and a vertical direction position and a horizontal direction position of the first floating diffusion when viewed from the first photodiode are substantially the same as a vertical direction position and a horizontal direction position of the second floating diffusion when viewed from the second photodiode, it is clear that Guidash does not anticipate claim 8, or any claims dependent thereon. Furthermore, this feature is not obvious even for a person having an ordinary skill in the art. Accordingly, as all rejections of claim 8 have been addressed, Applicants submit that claim 8 is patentable over the prior art.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 8 is patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

IV. Conclusion

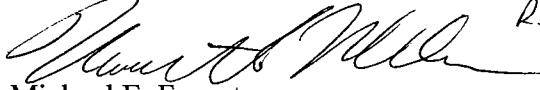
Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

Application No.: 10/574,775

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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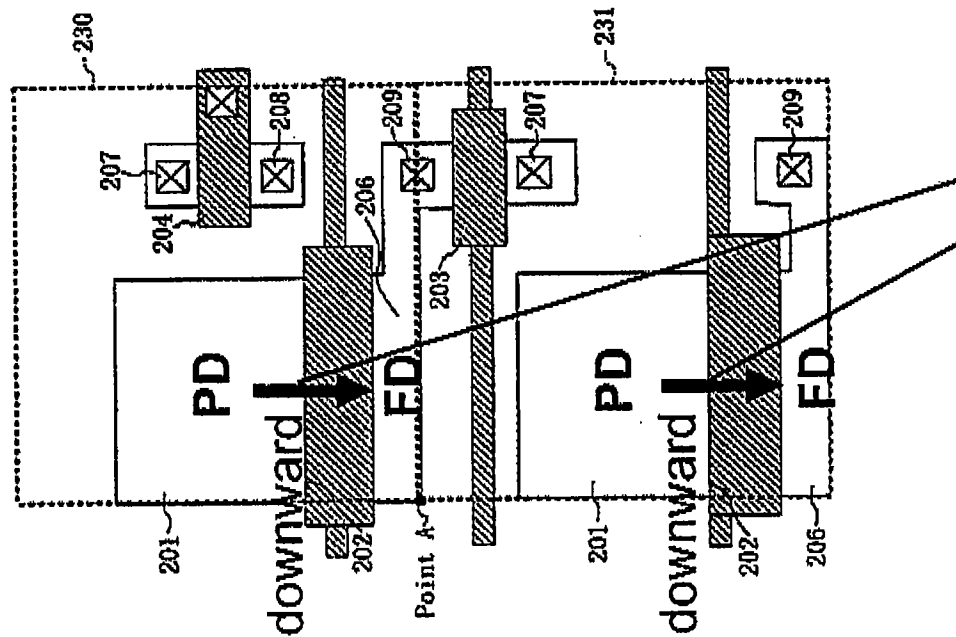
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Explanation of the difference from Guidash

This invention

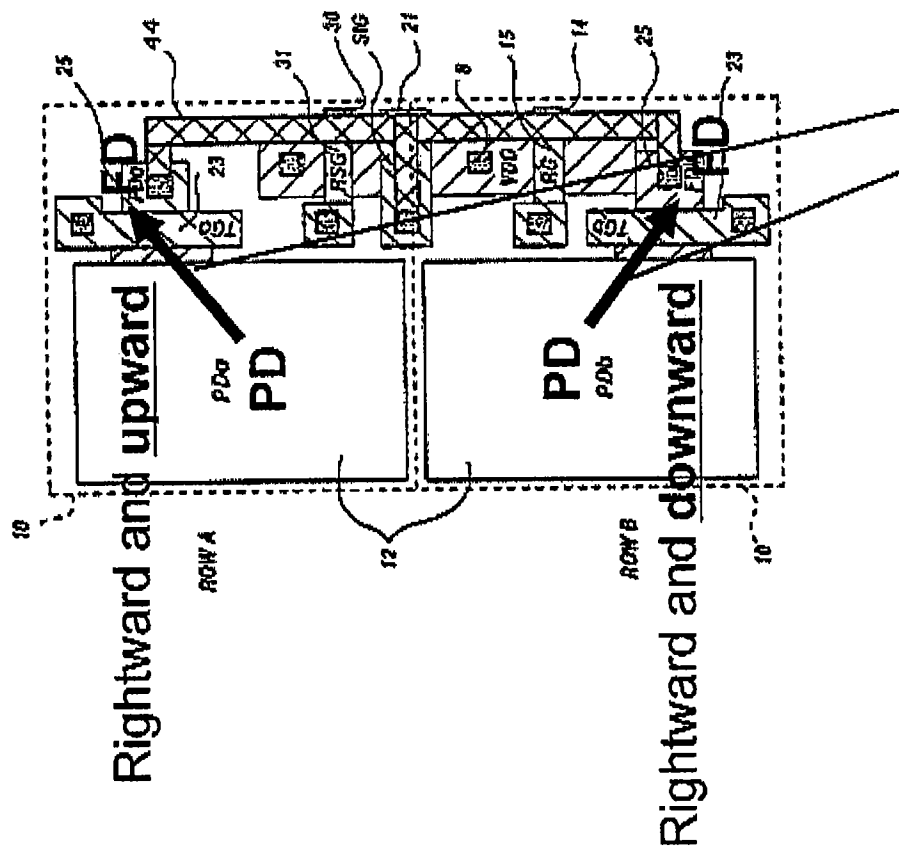
FIG. 1



Same distance
and same direction (parallel)

Guidash (US 6,657,665)

Fig.4



Same distance
but not same direction (not parallel)